

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of:)	
)	
Digital Audio Broadcasting Systems)	
And Their Impact on the Terrestrial)	MM Docket No. 99-325
Radio Broadcast Service)	

*My comments appear in **boldface**, interspersed with the Commission's original questions:*

I. RULE CHANGES AND AMENDMENTS

A. Service Rules

Digital Audio Multicasting. We seek comment on how many audio streams a radio station can transmit using IBOC without causing interference or degrading audio quality. Will the availability of additional audio streams spur public demand for digital audio receivers? We seek comment on the ways broadcasters can use this technology to provide greater access to radio for all people. How can the availability of additional audio streams further our diversity goals, particularly for people with disabilities and minority or underserved segments of the community?

The Commission's 80-90 proceeding promised to make more stations possible, and increase the variety of programming available and the variety of audiences served. It has fulfilled one of those goals - and failed miserably at the other.

It is the availability of interesting programming formats, not available via terrestrial radio, that has spurred the sales of XM and Sirius satellite radio. Listeners will buy terrestrial digital receivers if they believe they will be able to access interesting programming. However, it's probably impossible for the Commission to ensure such programming will be available. Regulation of music formats would be an enormous bureaucratic task, if it's possible at all.

Different audiences will tolerate different levels of quality. Classical and jazz listeners will demand the highest audio quality; listeners to popular music and mainstream talk shows will demand the absence of noticeable artifacts; listeners to exotic music or talk formats will probably accept significant amounts of artifacting as preferable to no programming at all. The Commission should allow stations to carry as many streams as desired, within the data rate that can be broadcast without interference.

We seek comment on to what extent we should permit radio stations to lease unused or excess airtime to unaffiliated audio programmers. We seek comment on whether our diversity goals will be furthered if we allow independent programmers to lease excess capacity from broadcast licensees? How should current regulations, such as our sponsorship identification rules, be applied in this situation? Should the licensee be responsible for ensuring the fulfillment of all regulatory obligations, as is the case for digital television stations? How does Section 310(d) of the Act, regarding transfers of control, apply in this situation? Moreover, how would the Commission's broadcast ownership limits and attribution rules be affected if an unaffiliated programmer, that is also the licensee of another station in the same market, leases one of the additional audio streams? Should there be an overall limit to the amount of programming time a particular radio station can lease to others?

It's currently permissible for third parties to lease airtime on analog stations, subject to several of the Commission's regulations. There is little reason to regulate this situation differently on digital stations.

There is one significant difference: in analog, there is only one signal to lease. In digital, there could be multiple signals - and the licensee could choose to lease only one. Should, for example, Bonneville's leasing of one stream on WRVW-HD count as an attributable "station" for purposes of the multiple-ownership rules? Even if WRVW's owners retain control of two other audio streams?

B. Programming and Operational Rules

Local Programming. We seek comment on how digital technology can be used to promote localism in the terrestrial radio service. For example, we seek comment on whether to impose a minimum local origination requirement on digital radio transmissions. If a radio station multiplexes its signal, should each audio stream have a local component? If so, how much? Should that local component include some news or other public affairs programming? In the alternative, should we allow a radio station to carry national programming on one or more of its streams if it devotes one of its streams to local programming?

Existing localism requirements are essentially a sham. Many analog stations broadcast satellite-fed national programming 24 hours a day already. The only local material are the hourly identification announcements and, if the station's lucky, an occasional local advertisement. And maybe a poorly-engineered church service remote on Sunday morning.

There is a dilemma in this area. Consider, for example, a classical-music station, (or stream) receiving its program via satellite from a national service. If an obligation to air local news is imposed on this station, it must break from its (presumably unique to the market) music format. Is it really in the public interest to force several minutes of unique musical programming from the air to provide a few more minutes of local news? Especially when the local news/talk station is happy to provide that news, and will probably do a much better job?

Multiple-stream broadcasting does bring up an interesting opportunity in this area. Public-interest and localism requirements could be imposed on a given frequency, with the licensee allowed to "divvy up" programming fulfilling those requirements among multiple streams on that frequency.

For example, a requirement for two minutes of local news each hour per frequency could be imposed. A station airing news/talk, top-40, and jazz streams could fulfill this requirement by airing six minutes of local news on the news/talk stream, and staying with the music on the other two.

Station Identification. We seek comment on whether the station identification rules would apply to all digital audio content of a radio station. How should a station identify audio channels other than the main channel? Should there be separate call letters for separate streams? We seek comment on how any proposed rule should differ, if at all, for AM radio stations.

What is the purpose of the station identification regulation?

***Is it to ensure Commission engineers can tell which station is violating the technical regulations?* The field staff's success in locating unlicensed "pirate" stations (which of course don't comply with 73.1201!) suggests that identification is no longer necessary for this purpose.**

Is it to ensure the public knows which station to file a complaint against? Many stations use their call letters only for the hourly identification required by 73.1201, using a slogan like "The River"; "Q-108"; or "WTN", the rest of the time. Some stations even use call letters assigned to someone else, using their real?? call letters only for the hourly announcement. Many stations broadcast the 73.1201 announcement well before or after the hour. It is often "buried" between commercials, and/or read as quickly and quietly as possible. It seems likely that the majority of radio listeners don't know?? the call letters of their favorite station. (let alone any other station on which they may hear objectionable programming in passing)

Digital broadcasting presents an opportunity to require useful identification while not infringing on the station's desired positioning statements. The Commission should require digital stations to broadcast their call letters and city-of-license in a specified publically-visible datacast service. If this is done, there should be no requirement for aural identification in any of the audio streams.

(while it's beyond the scope of this proceeding, the Commission should consider whether identification through the "PI" field in the RBDS data system should be allowed in lieu of aural identification for analog FM stations)

C. Technical Rules

1. Rule Amendments for the AM Service

AM Nighttime Operations. We request comment here on expansion of interim IBOC procedures to allow all AM stations to implement IBOC service at night without prior authority, as NAB proposes. How else can we help facilitate improvement in the IBOC standard so that AM digital radio service can be received throughout the day and night?

Interference. We seek comment on whether this complaint process is working, and, if so, whether we should make the process permanent when final IBOC standards are adopted. Are there any related instances where the Commission may delegate authority to the Media Bureau to resolve matters in an expeditious manner?

It is this commenter's belief that there has not yet been sufficient study of the interference effects of nighttime IBOC operation. My personal experience with IBOC is very limited; WSAI (1530KHz) Cincinnati is the nearest station to experiment with nighttime IBOC. Reports from others much closer to IBOC test stations like WOR New York suggest severe adjacent-channel interference??¹ results. Such interference should probably be expected, given the continuous presence of outer digital carriers in the adjacent channels. (as opposed to the intermittent sideband products present in the adjacent channels to analog stations)

It appears NAB and Ibiquity believe the sacrifice of secondary coverage is a worthwhile trade for the improved audio quality of digital. I'm concerned that the Commission may not understand just what may be lost with the sacrifice of secondary coverage.

¹Indeed, there are numerous reports of second-adjacent channel interference, far more than can be explained by receivers with poor selectivity. These reports are difficult to explain through theory, and suggest serious intermodulation problems at some digital stations. One can only expect such problems to get worse as more digital stations take to the air, and receive less individual attention from equipment makers. The Commission should investigate the problem of second-adjacent interference before allowing nighttime IBOC operation.

At my location, only two AM stations (WSM-650 and WLAC-1510, both Nashville) provide primary coverage. Indeed, even WLAC often suffers from skywave interference. Access to a variety of programming at night is possible only because of secondary skywave coverage from stations like WGN Chicago, WHAS Louisville, KMOX St. Louis, and WSB Atlanta. Adjacent-channel interference from IBOC operation at stations like WOR, WCCO, KOA, KFAB, KOMA, and WJR would likely leave me with one usable nighttime AM service. When combined with the likely loss of secondary FM? service under FM-IBOC, rural listeners could find their list of choices considerably reduced.²

From the previous paragraph, one might believe I live in an isolated rural area. I am in fact in a Nashville suburb, within 30 miles of the city center. It is not necessary to travel very far to find places where there is no nighttime primary AM service - where the loss of secondary service will make AM radio completely useless. I can only imagine what reception would be like in truly isolated areas of the West.

Indeed, my situation is relatively privileged with regard to primary AM service, in that I happen to live near a city with two Class A stations. Consider another radio market similar in size to Nashville; Greensboro/Winston-Salem, North Carolina has no? Class A AM stations. Mayodan, N.C., similar in size to Pleasant View, would likely receive no primary nighttime AM service - no? nighttime AM service at all with IBOC adjacent-channel interference.

The Commission must consider very? carefully whether the goal of improved audio quality for listeners in large cities is worth the cost of eliminating AM service altogether in rural - and even suburban - areas. Perhaps nighttime IBOC operation should be permitted only with directional antennas, to protect adjacent-channel stations?

2. Rule Amendments for the FM Service

FM Operating Power. The digital component of the FM IBOC system operates 20 dB below the level of the analog carrier. When there is no analog carrier (*i.e.* all digital operations), it is not possible to set the digital power relative to the analog power level. We seek comment on the appropriate means to measure and calculate power levels. We also seek comment on the appropriate measurement instruments for this exercise. How should any new rule take into account combiner and filter loss?

It would seem reasonable to set the power for all-digital "FM"-IBOC at 20dB below what the analog carrier would be if there was one. For example, station WJXA-FM is licensed for 100,000 watts analog ERP; WJXA's digital power would be 1,000 watts ERP. There is little reason to change that figure simply because WJXA's analog signal has been shut down.

73.310(a) takes transmission line losses into effect when calculating the effective radiated power of an analog FM station. The intent of that clause would seem to be to ensure that ERP is calculated based on the power actually delivered to the antenna. Combiners and filters didn't exist when this regulation was written - if they did, one would presume they too would be considered in the calculation of ERP. It would certainly be reasonable to

²At least seven FM stations (WGGC, WZZP, WHOP, WWTN, WRLT, WBUZ, and WVRY) deliver usable secondary signals on standard car radios at my location with predicted field strengths of between 47 and 60dBu. WRLT (100.1MHz) in particular is almost certain to be lost to adjacent-channel interference from any future WVVR (100.3) IBOC operation.

consider these devices in the calculation of digital ERP.

FM Booster and Translator Stations. For these reasons, we solicit comment on issues relating to FM translator and booster stations. For example, should our rules facilitate the establishment of additional digital boosters to fill in areas with poor analog coverage? Will stations converting their main signal be required to simultaneously convert their boosters and/or translators? Section 74.1231(b) currently restricts commercial FM translators not providing "fill-in" service from using alternate means of signal delivery; that is, such translators must rely on direct, over-the-air reception of the primary FM station. We seek comment on whether this rule should be modified for IBOC operation. How will this affect broadcast localism? If translators are allowed to use alternate delivery means, should there be some geographic or other limits to the delivery of the digital signal to the translator?

74.1231(d) and (e) provide sufficient proof against the use of translators to circumvent the limits on ERP and HAAT. Limits on the technology used to deliver programming to "non-fill-in" translators are unnecessary. For analog translators, these limits impede quality of service. For digital translators the audio quality will not be hurt, but the reliability of service could be. (for example, as the result of atmospheric interference on the translator's input) Artificial limits on the distance at which "non-fill-in" service can be provided by third parties artificially limits the choice of programming available to listeners. As long as such service can only be provided by third parties, the public interest is served.

Abuse of 74.1231(b), by non-commercial translators, is rampant. Several operators have used these provisions to create national services with literally no local content. The Commission should take this opportunity to reverse the ownership restriction in 74.1231(b) for translators fed by "alternative means".

"...operating on a reserved channel and owned and operated by the licensee of the primary non-commercial educational FM station it rebroadcasts..." should be replaced by "...operating on a reserved channel and not owned or operated by the licensee of the primary non-commercial educational FM station it rebroadcasts..."

Such a change would allow local residents to provide unique programming from a distant station, but only if there was local interest in that programming - not if someone in a city 2,000 miles away thinks there might be interest.

3. Patents

We seek comment on iBiquity's conduct during the interim period. We also seek comment on whether this matter needs to be further addressed now or whether we should wait until radio station conversion has progressed to a point at which digital receivers have substantially penetrated the market.

There is little evidence of iBiquity misconduct in regard to patents in the current timeframe. However, the choice of a proprietary system is a dangerous precedent. Never before has a broadcast technology been selected that mandates the use of a patented technology.

I see no proof against future patent fee hikes. Should (for example) iBiquity find itself in financial trouble in the future, could they impose a large increase in royalties? Since broadcasters have no alternative to the use of iBiquity-patented technologies, they either pay the increased fees or go out of business. Similar

concerns would apply to receivers.

Should the Commission consider in some way capping patent fees? Might it be advisable to require iBiquity to release their patents into the public domain once some fixed amount of royalties have been earned? Or after some fixed number of stations have purchased IBOC transmitting equipment? Or after some fixed number of IBOC receivers have been sold? Or after some fixed period of time?

NOTICE OF INQUIRY

D. Digital Audio Content Control

We seek specific comment on two central issues: (1) does a problem exist that requires governmental intervention; and (2) to what extent can, and should, the Commission involve itself in this matter. As to the former, we seek comment on the extent of the alleged harms raised by RIAA. Specifically, is the copying of DAB content for noncommercial use by consumers a threat to recording artists and copyright holders? What evidence is there that injury has been, or will be, incurred? For example, what economic injuries have recording artists suffered in countries, such as Great Britain, where DAB is now commonplace? Is the problem of home copying limited to DAB or does the alleged threat extend to SDARS and analog audio content converted to a digital format? What are the possible solutions to the matters raised by RIAA? In what ways does the solution RIAA seeks go beyond the protections we put in place against indiscriminate Internet redistribution for digital television transmissions? What other issues are implicated by potential restrictions on storage, recording, or home copying? We also seek comment on the source of our authority to act on RIAA's concerns if there is substantial evidence of harm on the record. Could we reasonably conclude that free over-the-air radio broadcasting would be threatened by digital audio copying to an extent sufficient to invoke our public interest authority under Section 4(i) of the Act?

Heavy-handed anti-recording technology will severely limit the adoption of DAB. There are legitimate reasons for recording radio programming off-air - for example, to enable a listener to hear a program that airs at a time when they must be at work, or to allow a listener to listen later to a Nashville Predators game that aired while the listener was watching the Titans on TV. If the listener learns he can't record his game off a DAB receiver, he's going to continue using his analog radio. Anti-evasion schemes that, say, make it impossible to patch an IBOC radio into an existing audio amplifier will also considerably limit the purchase of IBOC equipment.

Recording music off-air is a rather inefficient way of accumulating an illegitimate library. Many stations (especially those running popular-music formats) "segue in" to records - talking over the first few beats, mixing one "cut" with the next one - in the interest of keeping the presentation "tight" and limiting "dead air". This practice will not change with the move from analog to digital. And it will leave off-air tapers with songs with "spurious" announcements at the head and/or tail.

Even if the recordings were "clean", it is difficult to predict the next time a desired song will be played on the radio. Depending on the format, you could wait hours - or days - for a desired song. You might never hear it again.

Internet file-sharing is a far more efficient means of accumulating an illegal music library. So is the illegal "ripping" and "burning" of CDs. There's little

point in crippling DAB when the major infringement problem is - and will remain - elsewhere.

E. International Issues

Test results have indicated that hybrid IBOC operation is consistent with the Commission's allocation rules. What matters should the International Bureau focus on to expedite the rollout of DAB in the United States?

IBOC violates a fundamental assumption of the allocation system: the assumption that energy at the outer edges of the signal will be only intermittently present. In analog broadcasting, this energy is only present when unusually high-frequency content is present. (and in FM, at unusual amplitude) In IBOC digital, this energy is present at all times.

The increase in interference potential is obvious, and large. It's like the difference between your neighbor's dog barking once, and it barking all day long. You'll tolerate the former; the latter may drive you to consider certain actions not acceptable to the Humane Society.

A 500-watt non-directional fulltime analog station on 690KHz would not be authorized at Cincinnati, Ohio; it's too close to Canadian Class A station CINF, operating on the same frequency at Montreal. WLW is a 50,000-watt analog station on 700KHz in Cincinnati. Addition of digital carriers to WLW's signal, at 20dB below the analog carrier, would result in 500 watts of always-there digital power in the 690 (and 710)KHz channel(s).

The Commission should consider an AM-IBOC station to occupy both its existing channel and, at 20dB reduced power, both adjacent channels. Due to the high duty cycle of the digital carriers, the station does in fact occupy these channels.

Respectfully submitted,

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